A Sustainable and Resilient World: Capacity Building and Geospatial Research for Implementing the SDGs

11:00 - 12:00
Wednesday 21 Nov 2018
Deqing, China
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Setting the Scene

Prof. Abbas Rajabifard
Chair, UN-GGIM Academic Network
The Academic Network is a formal body constituted as part of the United Nations Global Geospatial Information Management (UN-GGIM).

UN-GGIM Academic Network is the strategic knowledge, research and training arm of it.
The Academic Network is a coalition of recognized universities, research and education centers or equivalent involved in the research, development and training on geospatial and land information and related matters.

The Academic Network is a platform for the academic community to contribute and support UN-GGIM in achieving its vision and goals and as a strategic arm to empower their process in the form of strategic knowledge, research, education and training.

The Academic Network will provide both research and education capabilities for UN-GGIM, its Regional Groups, WGs and affiliated members to identify and response to challenges and opportunities in which UN-GGIM can achieve their visions.
Academic Network

Over 50 Members

Executives

Chair
Prof. Abbas Rajabifard
University of Melbourne (Australia)

Deputy Chair
Prof. Maria Antonia Brovelli
Politecnico di Milano (Italy)

Secretary
A/Prof. Daniel Paez
University of Los Andes (Colombia)

Regional Entities

Africa
Prof. Jide Kufoniyi

Americas
Prof. Rosario Casanova

Asia-Pacific
Prof. Huayi Wu

Europe
Prof. Joep Crompvoets

Advisory Board

Prof. Huayi Wu
Wuhan University (China)

Prof. Joep Crompvoets
KU Leuven (Belgium)

Prof. Harlan Onsrud
University of Maine (USA)

Prof. Monica Wachowicz
University of New Brunswick (Canada)

Prof. Menno-Jan Kraak
University of Twente (Netherlands)

Prof. Jide Kufoniyi
Obafemi Awolowo University (Nigeria)

Prof. Josef Strobl
University of Salzburg (Austria)
Major Activities and Steps

- **Dec 2015 NY** Initial Idea & request
- **April 2016 Addis Ababa** 1st Exploratory Meeting
- **June 2016** Formation of Task Team
- **August 2016 NY** 1st Official meeting • Official Approval
- **Oct 2016** ToR Workplan Organisation

- **Oct 2016** 2nd Meeting • Governance & Formation of Board
- **Nov 2016** 3rd Board Meeting, Taipei • Web Design
- **Dec 2016 NY** UN-GGIM Bureau Meeting ToR was approved
- **Feb 2017 Doha** UN-GGIM Arab States Meeting Qatar

- **Aug 2017 NY** UN-GGIM Expert Com. Meeting Int. Forum
- **Nov 2017 Mexico** HLF UN-GGIM & Academic Network Meeting
- **2018**
  - **Aug 2018 NY** UN-GGIM Expert Com. Meeting Int.
  - **Sept 2018 MEL** Intl. Workshops Symposium: A Sustainable Future for All

- **Nov 2018 Zhejiang** UNWGIC “The Geospatial Way to a Better World”
- **August 2019 NY** UN-GGIM Expert Com. Meeting Int. Forum
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Session Objectives

1. Identification of areas that academic sectors should concentrate on and recommendations to assist their jurisdictions to achieve SDGs and future sustainability efforts

2. Presentation of strategic roadmap and recommendations for national action plan

3. Capacity building strategies for strengthening geospatial knowledge and impact across different domains
Session Program

Prof Abbas Rajabifard, The University of Melbourne, Australia
Topic: “A Sustainable and Resilient World: Capacity Building and Geospatial Research for Implementing the SDGs”

Prof Maria Brovelli, Politecnico di Milano, Italy and Dr Ivana Ivanova, Curtin University, Australia
Topic: “Open Science and Education for Implementing SDG”

Prof Menno-Jan Kraak, University of Twente, The Netherlands
Topic: “Train the Map Makers, Educate the Map Users”

Prof Huayi Wu, Wuhan University, China
Topic: “Sharing and Utilizing Night Light Remote Sensing Images of Luojia 1-A”

Prof Chryssy Potsiou, National Technical University of Athens, Greece
Topic: “FIG Recent Activity in Developing Partnerships for the Implementation of UN SDGs”

Dr Zhixuan (Jenny) Yang, Dongbei University of Finance and Economics, China
Topic: “Implementing SDGs in Smart Cities Beyond Digital Tools”

Dr Zaffar Sadiq Mohamed-Ghouse, President, SSSI Australia
Topic: “Role of National Professional Body supporting SDG’s through Certification and CPD – An Australian Perspective”

A/Prof Michael Starek, Prof Gary Jeffress, Dr Tianxing Chu, Texas A&M University-Corpus Christi, USA
Topic: “3D Geospatial Information for Sustainable Coasts: Emerging Solutions and Applications”
Acknowledgment - Speakers
Future is Smart, Connected and Sustainable

Moving from being “Sustainable” to Productivity & “Regenerative”
Digital Disruption

• Data, data, data
  - by 2020, **1.7 megabytes** of new data created per second per human
• Personalisation of IT
• New scales of operation
• **Industry 4.0** – and the significant role of spatial technologies
• ‘**Smart**, ‘**Intelligent**’, ‘**Resilient**’ cities – decision-making in a complex, urban world, …
• Modernisation agenda for Governments.

Source: Mimi Potter, fotolia.com

Sustainable and Resilient Movement

Spatial Data  3DCadastre
Community  Indoor
Public Space
Opendata  ISO Analytics
Design Visualisation
GIS eGovernance  Transport
OGC  IoT Sustainable
Smart BIM BigData
ICT  3DCity
Engagement
Sensors
Collaboration
Shared Data
Connected Society
Requirement: Research and Capacity Building for the SDGs

Solution: Resilient Infrastructures, Secure Land Rights and Spatial Enabled Societies
The SDG Report 2018

Interlinked nature of the SDGs
Requirements: Session Topics

**Transdisciplinary RoadMaps**
- Capacity building & training
- Open Science and Education
- Interdisciplinary Research Frameworks
- Professional Body supporting SDG’s

**Train the Map Makers, Educate the Map Users**

**Mapping social, economic & environmental interconnections for sustainable development**

**Capacity Building and Geospatial Research for Implementing the SDGs Enabling tools**

**Strategic pathways and Enabling Tools to improve the achievement of the SDGs**

**Spatial enablement**

**Emerging Solutions and Applications**

**Geospatial Technologies & platforms**

**Smart Cities Beyond Digital Tools**

**Open Science and Education**

**Train the Map Makers, Educate the Map Users**
Urban Connectivity

Social, Economic and Environmental Urban Challenges

SDG 11 Synthesis Report
High Level Political Forum 2018

UN-GGIM | ACADEMIC NETWORK
unggim.academicnetwork.org
Academic Network
Workplan 2018-2019

- A Sustainable and Resilient World: Capacity Building and Geospatial Research for Implementing the SDGs
- Technical Groups, Regional Groups and Sub-committees on UN-GGIM
- 2018 Session at UNWGIC
- Research and Training Support
- Capacity Building
- Research Project
- Cadastral Template 2.0 for the SDGs
- Role of Geospatial Research & Innovation in Implementing the SDGs
- Capacity building and training
- Online Registry of Technical Capacities Across the Members of the Network
- Internship Program

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Research Collaboration Projects

- Geospatial infrastructure for measuring and monitoring the SDGs
- Role of open spatial data on implementing the SDGs at local, national, and global levels
- Strategic framework for the enhancement of capacity building, the collection and sharing of geospatial data
- Integrated Spatial Data Infrastructure for advancing the sustainable development goals in developing societies

The Role of Geospatial Research and Innovation in Implementing the SDGs

- Project with UN Geospatial Information Section
- Cadastral Template 2.0 for the SDGs

- Scenario analyses for SDGs with land use pattern projections
- GI innovation supports achieving SDGs
- Earth Observation and VGI for resilience, disaster management, and damage assessment
- High-Resolution Global Land Cover maps production, validation, and inter-comparison

UN Open GIS

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Addressing Urgent Research Needs

$1.65 trillion
Total damage

1.9 billion
Total people affected

0.6 million
Total people killed
Disaster Impact on Social, Economic and Environmental Systems

Infrastructures

Land Coverage

Housing
Are we prepared for what’s to come?
Understanding SDG Connections in the Context of DRR

How the Sustainable Development Goals contribute to the Sendai Framework

In September 2015, more than 190 world leaders committed to the 17 Sustainable Development Goals to help end extreme poverty, fight inequality, combat climate change, and build resilience to disasters. While all the Sustainable Development Goals are relevant for building a sustainable and resilient world, a number of them have targets directly or indirectly related to disaster risk reduction. Implementing the Sustainable Development Goals also contributes to achieving the goal of the Sendai Framework to prevent new and reduce existing disaster risk, and strengthen resilience.

TARGET 1.1 By 2030, reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

TARGET 1.3 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

TARGET 1.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

TARGET 1.7 By 2030, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards reduction of losses, livelihood resilience, and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.

TARGET 1.9 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

TARGET 2.4 By 2030, ensure sustainable food production systems to implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, and that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

TARGET 3.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access to all.

TARGET 3.4 By 2030, ensure access for all people in developing countries, for early warning, risk reduction and management of national and global health risks.

TARGET 3.6 By 2030, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

TARGET 4.4 Build and upgrade educational facilities that are child-friendly, disability and gender sensitive and provide safe, non-violent, inclusive and effective environment for all.

TARGET 5.1 Promote equal rights to property, protect the environment, respect and promote the human rights of all, and protect the rights of all persons to social, economic, cultural and environmental protection.

TARGET 5.2 Promote the empowerment of all women and girls in the political, economic and public life of countries, in the community and in the family, with a focus on women and girls in disaster risk reduction and management, and ensure access for all people in developing countries, for early warning, risk reduction and management of national and global health risks.

TARGET 5.4 Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States.

TARGET 5.9 By 2030, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards reduction of losses, livelihood resilience, and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.

TARGET 5.11 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

TARGET 5.13 Improve education, awareness raising and human and institutional capacity on climate change, mitigation, adaptation, impact reduction and early warning.

TARGET 5.15 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.
Paving the way for a disaster resilient future
Intensive mapping of the links between disaster management and resilience research themes with the UN’ Sustainable Development Goals and supporting transdisciplinary research to overcome real-world challenges.
A Sustainable and Resilient Future for All

Sustainable Development

"Leave no one behind"

Resilience Thinking

"Building back stronger"
Link:
https://www.unimelb.edu.au/cdmps/home#sdg-blueprint
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Thank you!

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Melbourne School of Engineering, The University of Melbourne
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Session Program

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